

NOV 06 1992

ENVIRONMENTAL ASSESSMENT AND REMEDIATION, Inc.

P.O. Box 97 West Dover, VT 05356
(802) 464-8850

October 29, 1992

Mr. Charles B. Schwer
Supervisor, Sites Management Section
State of Vermont
Department of Environmental Conservation
Hazardous Materials Management Division
103 South Main Street, West Building
Waterbury, Vermont 05671-0404

Subject: Environmental Site Assessment at the Maple Leaf Country Store, North Street, East Dover, VT (Site #92-1222)

Dear Mr. Schwer:

On behalf of Mr. Ernest LaPlante, Environmental Assessment and Remediation, Inc. (EA2R) is pleased to present the enclosed Environmental Site Assessment Report for the Maple Leaf Country Store site located in East Dover, Vermont. The letter report summarizes the findings from the additional investigations performed at the site to further define the degree and extent of the reported gasoline contamination.

The scope of work for the investigation was developed according to the requirements and specifications as stated in the State of Vermont, Department of Environmental Conservation (DEC) letter dated June 10, 1992. The report contains field activities, methodologies, results, conclusion and recommendations.

If you have any questions regarding the enclosed report or need any additional information, please call me at (603) 224-8090.

Sincerely,



Joseph Camanzo
Environmental Chemist
Vice President

cc: Mr. Ernest LaPlante



ENVIRONMENTAL ASSESSMENT AND REMEDIATION, Inc.

P.O. Box 97 West Dover, VT 05356
(802) 464-8850

October 13, 1992

Mr. Ernest LaPlante
Box 153 Brattleboro Road
Bernardston, MA 01301

Subject: Environmental Site Assessment at the Maple Leaf Country
Store, North Street, East Dover, VT (Site #92-1222)

Dear Mr. LaPlante:

Environmental Assessment and Remediation, Inc. (EA2R) is pleased to present the following Environmental Site Assessment Report for the Maple Leaf Country Store site located in East Dover, Vermont. This letter report summarizes the findings from the additional investigations performed at the site to further define the degree and extent of the reported gasoline contamination. The removal of two underground storage tanks (USTs) and the reporting of a gasoline release to the environment were documented by Mr. James Shippee of Vernon, Vermont in a letter report dated June 7, 1992.

Mr. Shippee's report suggest that damage to a UST fill pipe (UST-2, see figure 1 Site Map) resulted in a release of gasoline after rainfall filled the damaged tank. However, the report also mentioned the presence of stained soils near the bottom of UST-1 which is up-gradient from the tank with the damaged fill pipe. Please refer to Mr. Shippee's report for more details on the site history and characteristics.

The scope of work for this investigation was developed according to the requirements and specifications as stated in the State of Vermont, Department of Environmental Conservation (DEC) letter dated June 10, 1992 (Attachment A). The field activities, methodologies, results, and conclusion can be found below:

ADDITIONAL INVESTIGATIONS

1. DEGREE AND EXTENT OF SOIL CONTAMINATION

The degree and extent of soil contamination at the site was further investigated by EA2R utilizing a soil gas survey method. This investigation focused on areas where the gasoline release was reported (UST areas), surface migration pathways of the fuel (including street drain, culvert area and channel leading to the Rock River), and the area

generally downgradient from the USTs. Since the reported release of gasoline was very localized (UST-2) and likely a surficial spill, the soil gas field screening survey was employed at this site as a cost effective preliminary approach to determine whether a contamination issue exists.

Soil Gas Methodology

The soil gas survey technique is a process by which subsurface delineation of volatile organic compounds (VOCs) contamination is estimated by analyzing the "gas" trapped in the soil above the water table (vadose zone). This method can be used to detect groundwater and soil contamination and is used to identify a source or delineate a contaminant plume. Because VOCs typically have low solubilities in water and high vapor pressures, dissolved VOCs have a strong tendency to partition into the soil atmosphere. The soil gas diffuses in response to a chemical concentration gradient in the subsurface. The analysis of soil gas concentrations may be used to determine the relative extent of contamination.

The method used to sample the soil gas was by manually placing soil gas probes in the area of concern. This was done by driving a pinch bar by means of a sledge hammer and driving to a specific depth (ranging from 1 - 4 feet), then removing the bar thereby forming a boring. Then a field screening instrument, specifically an HNu, organic vapor analyzer equipped with a photoionization detector (PID), which is very responsive to aromatic compounds found in gasoline, was used to sample and analyze the soil gas diffusing into the boring. The HNu probe containing an air sampling pump was inserted into the boring hole and the cylindrical probe was sealed off from the atmosphere with soil. This sampling technique allowed a soil gas to be taken with minimum dilution from the air. The probe remained sampling until a maximum reading was recorded on the meter. The concentration of organic vapor (soil gas) was recorded in parts per million (ppm).

The HNu meter is used to field-screen soil gas samples for total detectable organic vapor concentrations. These sample field instruments are not designed to identify and quantify individual organic compounds.

Soil Gas Results

On September 28 and 29, 1992, a soil gas screening survey was conducted at the Maple Leaf Country Store Site. This investigation focused on areas where the gasoline release was reported (UST areas), surface migration pathways of the fuel (including street drain, culvert area and channel leading to the Rock River), and general downgradient area from the USTs. The soil gas sampling locations, boring depths and concentration results can be seen in Figure 1. At each location, the pair of numbers indicate depth in feet and soil gas concentration in ppm, respectively. The depths of the borings were generally 2 - 4 feet, which was function of the ability to install the probes using the manual driving method.

The soil gas survey results indicated no detectable organic vapor concentrations were present in any of the borings with the exception of one location immediately down gradient of the former UST-2 location. This boring was at 3 feet and the soil gas

concentration was 13 ppm. Additional borings were installed in this area (UST-2) and no other detectable values were observed. This value is below the Vermont guideline of 20 ppm for gasoline contamination headspace screening using a PID instrument.

The fact that no significant levels of organic vapor were observed during the soil gas survey was in contrast to the detection of elevated soil gas in the stockpiled soils which were removed during the UST excavation. The maximum level detected in these soils was 110 ppm. For a complete summary of the stockpile soil analysis see section 3 of this report.

Additional field investigations included a head space screening sample from an existing soil vent pipe in the area of former UST-1. This also revealed no detectable response with the organic vapor meter.

Based on the soil gas survey results, it appears that the localized surficial release of gasoline from the Maple Leaf site did not significantly impact the subsurface conditions. This is based on the fact that no detectable organic vapors were observed in soil gas samples from probes install in the vicinity of the former USTs, downgradient surface runoff areas leading to a street drain, and the culvert area leading to the river (Figure 1).

It appears that much of the contaminated soil was removed from the UST excavation and that some residual contaminants still remain absorbed in the stockpiled soil (see Section 3). If any gasoline did get into the subsurface during the release, it may have naturally degraded, migrated downgradient, and/or volatilized and therefore was undetectable in the soil gas.

Although groundwater does not appear to be impacted, without the installation of down gradient monitoring wells and groundwater sampling and analysis from the site, the determination whether the groundwater has been impacted by the gasoline release can not be made absolutely.

2. IDENTIFICATION OF SENSITIVE RECEPTORS

Surface Waters

The only surface water receptor in the area of the site is the Rock River, which is located down gradient from the site approximately 400 feet to the south. There is no evidence of contamination currently leaching into the river, although during the UST-2 rain water overflow and subsequent release of fuel, the river may have been impacted by the gasoline release for a short period of time.

Water Supply Wells and Analytical Testing Results

There are no public water supply wells in the area of concern. The area is primarily residential and property owners utilize private drinking water wells. As required by the State DEC, drinking water wells which may be impacted by the contaminant release within 500 feet of the site were identified. The water supply wells of concern are identified and discussed by location along North Street and Dover Hill Road. They include (5) residences on the north side of the above mentioned roads and (1) residence

on the south of Dover Hill Road (Johnson house), adjacent to the Rock River. For the purpose of this discussion the Maple Leaf Country Store will be identified as House 1 and, in an easterly direction, subsequent Houses 2, 3, 4, 5 are identified (see Attachment B, Tax Assessor's Map). Some of the wells of concern were tested prior to EA2R's involvement in this environmental investigation. A discussion of the water supply wells and analytical results are summarized below:

House 1

Maple Leaf Country Store/East Dover Post Office

The water supply well is located in the rear of the facility in the vicinity of the northwest corner of the building. The well is up gradient from the reported gasoline release. The site well was sampled on July 1, 1992 by James Shippee and collected in the Post Office building and analyzed for Volatile Aromatic compounds, EPA method 602, and for Total Petroleum Hydrocarbons (TPH), method 418.1. The laboratory which performed the analyses was Matrix Analytical, Inc. from Hopkinton, MA. The laboratory data reports can be found in Attachment C.

According to Country store personnel, the Maple Leaf Country Store/East Dover Post Office water supply well is also the water source for House 2, the Wallace house.

The results of the July 1 sampling indicated no volatile aromatics or TPH were detected above the method detection limits.

House 2

Wallace house

The water supply (which is from the same source as House 1) was sampled on April 6, 1992 by TRI-S Environmental Consulting for the owner Jeffrey Wallace. The water sample was analyzed for Volatile Aromatic compounds by EPA method 8020. The laboratory performing the analysis was again Matrix Analytical, Inc. The laboratory data reports can be found in Attachment D.

The results of this water sample indicated no volatile aromatics present above the method detection limits.

House 3

Paneson house

The water supply for this residence is from the Johnson well located on the south side of Dover Hill Road adjacent to the Rock River. The Johnson well reportedly supplies the Johnson summer house and the Paneson house. The Johnson well was discovered during site reconnaissance by EA2R personnel and was determined to be down gradient from the site with the potential to be impacted by the gasoline release. The Johnson well was sampled by EA2R and analyzed for Volatile Organic Compounds (VOC). See discussion and results as described in the Johnson House section.

House 4

Stenson house/Hill Country Vending Machines

The water supply for this property is from an artesian well located a significant distance toward the rear of the property. After interviewing property owners on water conditions and the distance of the well to the site, it was concluded that this water supply need not be sampled at this time.

House 5

Lamontague house

The water supply for this property is from springs located in the rear of the property. Again, due to surficial water source (spring water) and its distance from the site, it was concluded that this water supply need not be sampled at this time.

Johnson house

As discussed above, the Johnson well reportedly supplies both the Johnson summer house and the Paneson house. EA2R sampled this artesian well at the well head water valve outlet on September 29, 1992. The water sample was collected in VOC vials and delivered to Aquarian Analytical, a certified laboratory located in Canterbury, NH, following chain of custody protocols. The sample was analyzed for Volatile Organics by EPA method 624. The laboratory data reports can be found in Attachment E.

The results of the Johnson well analysis indicated that no volatile organics were present above the method detection limits.

Water Supply Well Testing Summary

The sampling and analysis of water supplies pertaining to the environmental investigations performed at the site included 3 distinct water samples. Specifically, the samples were: 1) East Dover Post Office, 2) Wallace residence, and 3) The Johnson well. The results of all three of these samples revealed no detectable levels of volatile pollutants. Therefore, it can be concluded that the drinking water supplies at and around the Maple Leaf site have not been adversely affected by the contamination.

Basement Inspection for Fumes

Structures in the immediate vicinity of the spill were investigated for the possible presence of gasoline fumes in the basements. EA2R personnel interviewed Maple Leaf Country Store proprietor and conducted an inspection of the basement of the facility to determine if any fumes existed inside. Based on this investigation, no evidence of contamination or fumes were found to be impacting the building at that time.

In addition, EA2R interviewed Robyn Wallace, the resident owner of the house directly to the east of the site and was informed that there was no evidence of gasoline fumes existing in their basement.

3. SOIL STOCKPILE SCREENING RESULTS AND REMEDIAL PLAN

The soils which were taken from the UST's excavation in April, 1992 were stockpiled on the property located on the south side of North Street. The petroleum contaminated stockpiled soil was originally covered with plastic and roped off to prevent trespassing. The stockpile covering is tattered and has significantly weathered and is currently only present on the bottom 2-3 feet perimeter of the pile (see photographs).

The results of the stockpile soil gas field screening are shown in Figure 2. The approximate dimensions of the soil pile are 10 ft. X 20 ft. and 4 feet high at the highest point. As can be seen from the results, the soil pile was screened for organic vapor levels at 14 distinct boring locations (depth 1 - 4 feet) distributed throughout the pile. The soil gas concentrations observed ranged 2 ppm to 110 ppm with an average value of 40 ppm. These values are generally 2 orders of magnitude lower than they were when the soil excavation took place in April, 1992.

The significant reduction in organic vapor concentrations as measured by soil gas indicates that substantial weathering of the soils has taken place over the 6 month period since excavation. The contaminant reduction can be attributed to volatilization to the atmosphere, degradation by microorganisms or by chemical processes (oxidation), and by leaching of volatiles to surrounding media.

Soil Remedial Plan

The maximum soil gas concentration observed from the stockpiled soil (110 ppm) and the average concentration (40 ppm) exceed the Vermont remedial guideline for contaminated soils (20 ppm). Therefore, some reduction in VOC concentrations is required to bring the levels down to acceptable limits.

EA2R recommends moving the soil to a secure landfill or other secure location where no public exposure will occur. The soil should be placed on, and spread to a thickness of 6 inches maximum, over polyethylene sheets. The sheeting will minimize the potential for leaching to the surrounding soil. The spreading of the soil will increase surface area thereby increasing the rate of aeration to the atmosphere, rate of photooxidation, and other natural degradation pathways.

The aeration should be continued until acceptable soil VOC limits are met. Any regulatory permits needed to accomplish the soil remediation including local, state and federal agencies need to be secured by the owner prior to any transport or remediation of the soils.

4. CONCLUSIONS

- The water supply sample and analysis results of the three distinct samples including: 1) East Dover Post Office, 2) Wallace residence, and 3) The Johnson well, which were taken during various times of the environmental investigation, indicated no detectable levels of volatile pollutants. Therefore, it can be concluded that the drinking water supplies at and around the Maple Leaf site at this time have not been impacted by the gasoline release.

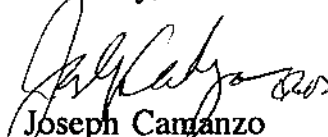
- Inspection and local interviews indicate no basements at or near the site are impacted by gasoline fumes.
- Based on the soil gas survey, results from probes installed in the vicinity of the former USTs, downgradient surface runoff areas leading to a street drain, the culvert area leading to the Rock River, and the area generally downgradient from the site, no significant soil or groundwater contamination appears to exist.
- It appears that the majority of the contaminated soil was removed from the UST excavation and that some residual contaminants still remain absorbed in the stockpiled soil.
- The results of the stockpiled soil field screening analysis using a soil gas method indicated concentrations ranged from 2 ppm to 110 ppm with an average value of 40 ppm. These levels exceed the Vermont remedial guideline for contaminated soils set at 20 ppm.

5. RECOMMENDATIONS

- Although an artesian well is located approximately 400 feet from the reported gasoline release, there remains a remote possibility for it to be impacted if the groundwater at the site was affected. This well, which supplies the Johnson house and the Paneson house, was discovered during site reconnaissance by EA2R personnel and determined to be down gradient from the site. A recommended long-term monitoring option for this site is to sample the Johnson well annually for Volatile Organic Compounds.
- The stockpiled soil requires a reduction of VOC levels prior for it to be considered non-hazardous according to Vermont guidelines. Therefore, it is recommended to transport the soils to a secure landfill of other secure location and remediate the soils by aeration and natural degradation mechanisms until acceptable soil VOC limits are met. For details on the Soil Remedial Plan see section 3 of this report.

If you have any questions regarding this report or need any additional information, please call me at (603) 224-8090.

Sincerely,


Joseph Camanzo
Environmental Chemist
Vice President

PHOTOGRAPHS



FIGURES

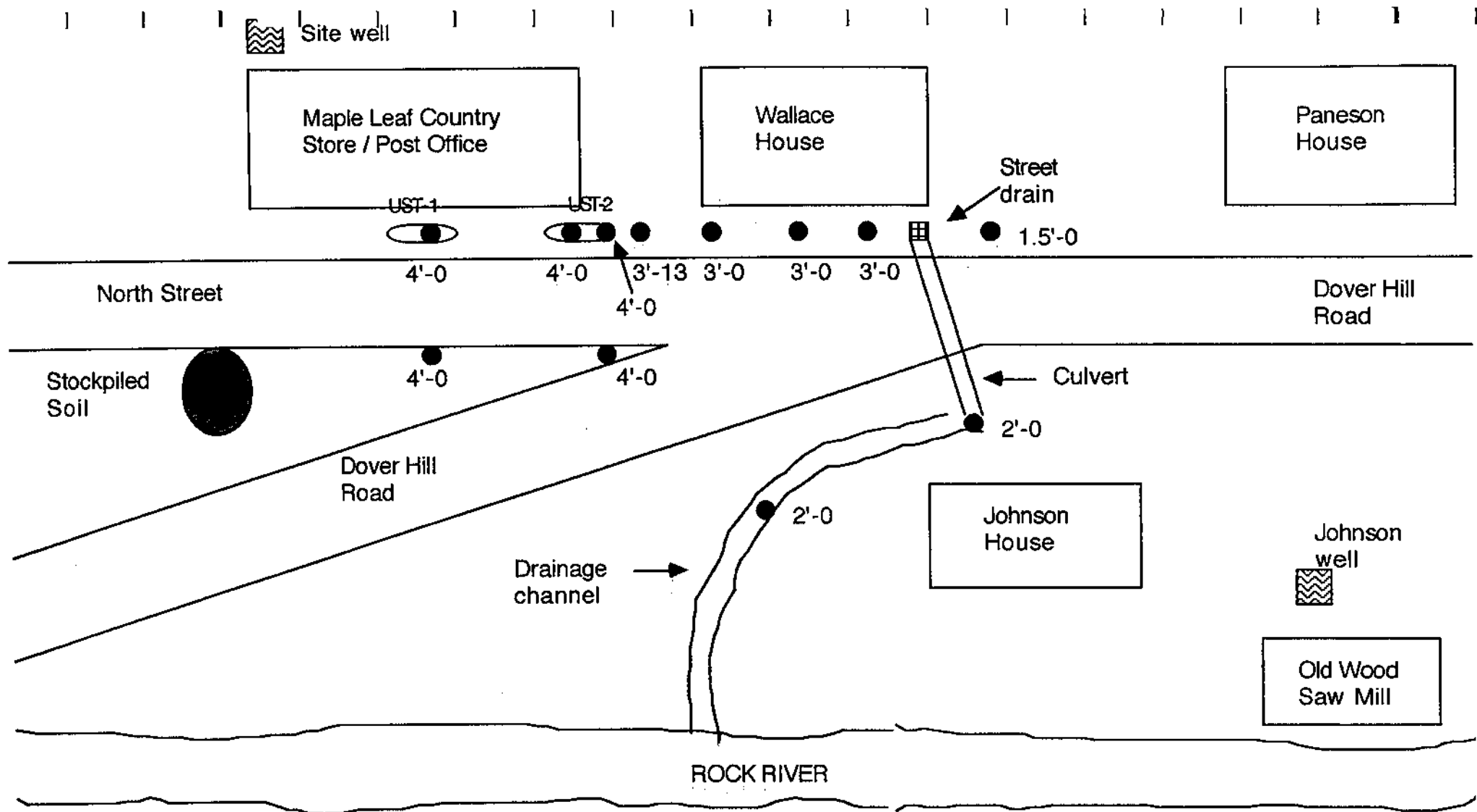


Figure 1
MAPLE LEAF COUNTRY STORE
EAST DOVER, VERMONT

SITE MAP

(not drawn to scale)

● Soil gas boring
 (3'-0) indicates boring is 3 feet and
 the organic vapor concentration is
 0 ppm.

▨ Water well

○ Former UST

EA2R, Inc.

MAPLE LEAF COUNTRY STORE

NORTH STREET

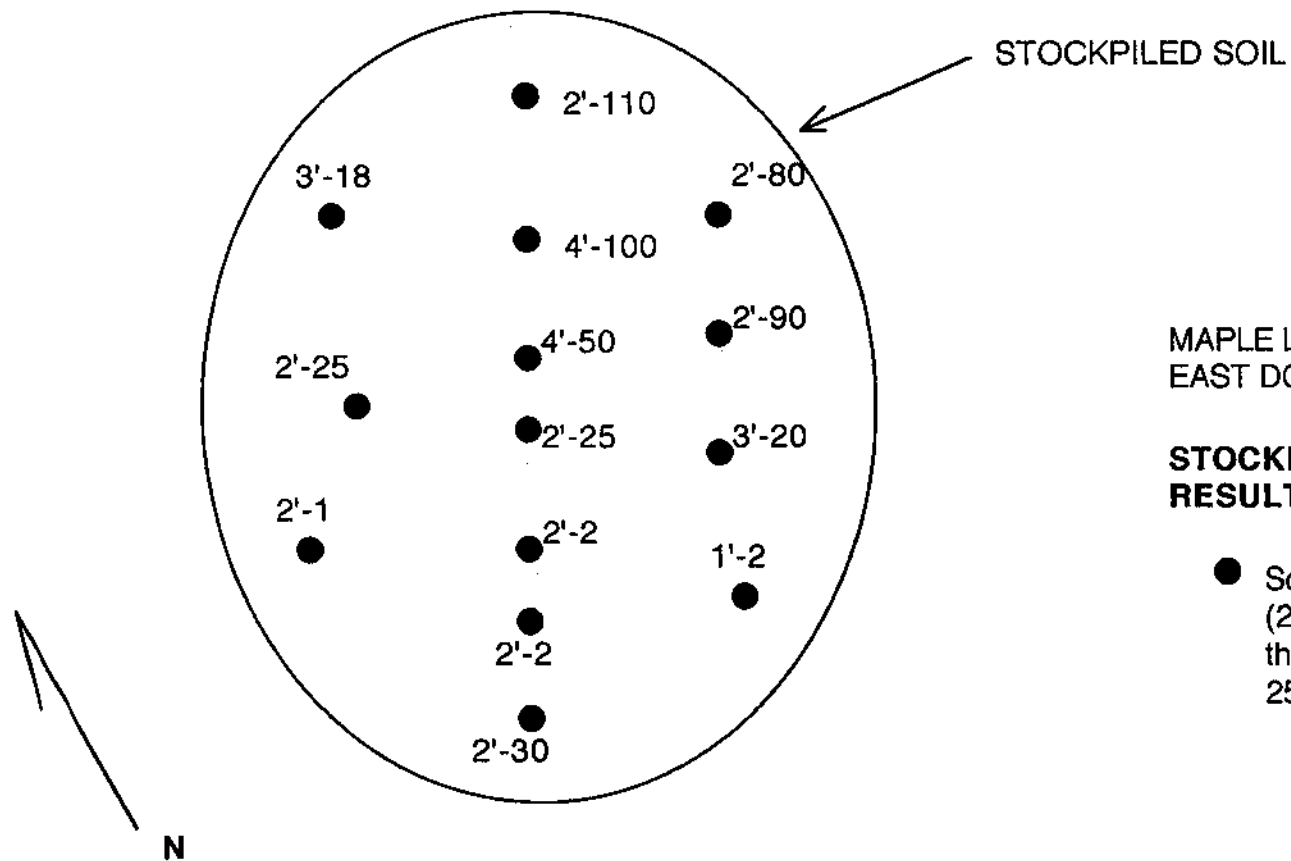


FIGURE 2

MAPLE LEAF COUNTRY STORE
EAST DOVER, VERMONT

**STOCKPILED SOIL FIELD SCREENING
RESULTS (SOIL GAS METHOD)**

- Soil gas boring
(2'-25) indicates boring is 2 feet and
the organic vapor concentration is
25 ppm.

(not drawn to scale)

EA2R, Inc.

ATTACHMENT A
DEC LETTER OF 6/10/92



State of Vermont

JUN 19 1992

FAX 26 26 1720

Department of Fish and Wildlife
Department of Forests, Parks and Recreation
Department of Environmental Conservation
State Geologist
Natural Resources Conservation Council

AGENCY OF NATURAL RESOURCES
Department of Environmental Conservation

Hazardous Materials Management Division
103 South Main Street / West Building
Waterbury, VT 05671-0404
802-244-8702

June 10, 1992

Ernest LaPlante
Box 153 Brattleboro Road
Bernardston, MA 01301

RE: Petroleum contamination at Maple Leaf Country Store, Main Street, East Dover (Site #92-1222)

Dear Mr. LaPlante:

The Sites Management Section (SMS) has received a report dated April 25, 1992 outlining the subsurface assessment of the above referenced site, conducted by James Shippee. This report summarizes the locations and the degree of contamination encountered during the removal of two underground storage tanks (USTs).

The soil at this site was reported to be contaminated. The high PID reading of 2,200 ppm indicate significant contamination in the area of excavation. This is approximately one hundred times the Vermont guideline of 20 ppm for gasoline contamination. According to the report, the contaminated soils were removed and stockpiled on-site. No groundwater was encountered during the excavation of the tank, however this does not discount the possibility of groundwater contamination.

Therefore, the SMS requests that you retain a qualified consultant to complete additional work at the site. This work will include a preliminary report to further define the degree and extent of contamination. Following is an outline of the work requested:

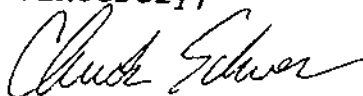
1. Determine the degree and extent of soil contamination at this site. This may include test pits, soil borings or a soil gas survey. Determine the likelihood of groundwater contamination. Any contamination to the groundwater will need to be assessed using monitoring wells.
2. Indentify all sensitive receptors in the area (ie., surface waters, private and public water supplies, etc). Sample and analyze any drinking water receptors at risk of being contaminated within 500 feet of the contamination. All water samples should be tested using EPA Method 8020.

3. Test the water from the well on-site using EPA Method 8020. If contamination exists in this well develop a plan for remediation of the drinking water contamination.
4. Develop a plan to dispose of or remediate the stockpiled soils.
5. Determine the need to develop a remedial treatment plan and longterm monitoring plan for this site. This should be based upon the results of the above requests, and may include passive and/or active remediation.
6. Submit a summary report providing a complete site map, the results of the subsurface investigation and any conclusions or recommendations which can be reached.

The contamination from the USTs at this site may be covered under the Petroleum Clean-up Fund (PCF). The SMS must be provided proof that there was no pollution insurance at this property before a final determination can be made. If the site is found to be in the PCF, all approved work will be reimbursed once the first \$10,000 of clean-up costs have been expended. Please review the enclosed Reimbursement Package which outlines the expenditures which are covered.

Please have your consultant submit a work plan within 10 days of receipt of this letter, for approval by the SMS. Within 60 days of approval, please have your consultant submit the preliminary report meeting the requirements above. Please call if you have any questions.

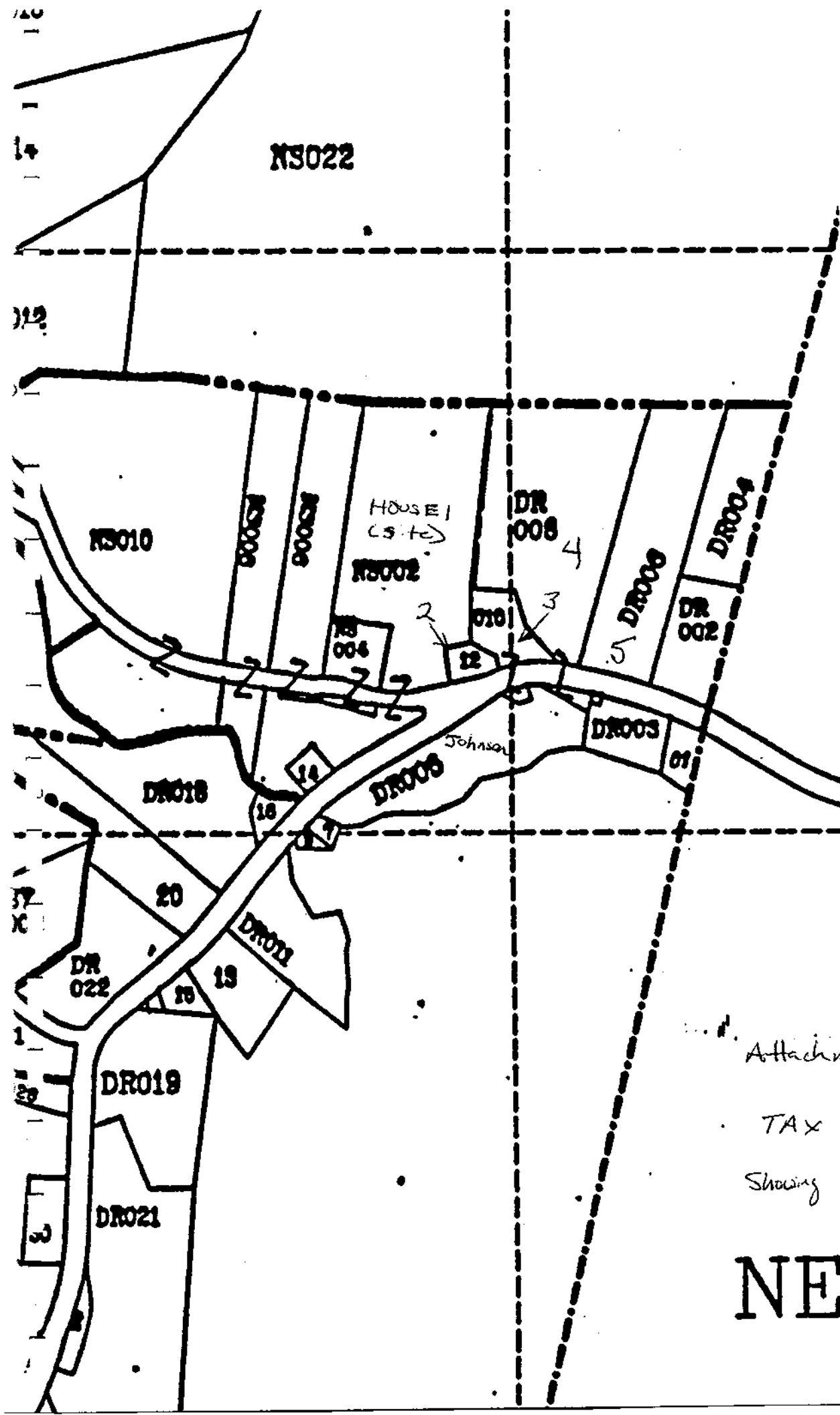
Sincerely,



Charles B. Schwer, Supervisor
Sites Management Section

cc: Dover Selectboard
CBS:PG/maple.let

ATTACHMENT B
TAX ASSESSOR'S MAP AND HOUSE IDENTIFICATIONS



Attachment B

TAX MAP

Showing property locations

NE

Record# LOCN OWNER

ADDRESS

Record# LOCN OWNER

ADDRESS

Record#	LOCN	OWNER	ADDRESS
1	1781	NS002 MOODY, RUTH H. & JANICE L. GRAY & ERNEST B. LA PLANTE	P. O. BOX #264
2	3664	NS002p MAPLE LEAF COUNTRY STORE	C/O JOYCE WRIGHT P.O. BOX 155
3	3026	NS004 WRIGHT, DANIEL & COLEEN	P.O. BOX 40
4	3025	NS004A WRIGHT, CHERYL & LUCRETIA	BOX 142
5	454	NS006 CLANCY, THOMAS	P.O. BOX 733
6	1834	NS008 MUNDELL, MELVIN R. & JUNE L.	BOX 30
7	917	NS010 FULLER, HAROLD L.	BOX 8
8			
9	Record#	LOCN	OWNER
10	2062	DR002 POWERS, RICHARD E. & BARBARA H.	93 SHEPLEY ST.
11	2590	DR003 SMITH, PRISCILLA	3 ARLINGTON DRIVE
12	3013	DR004 WOODFORD, HELEN	22 FERN CIRCLE
13	1269	DR005 JOHNSON, DARRYL E., DARLENE J. GRAVES, DENISE J. MEYERS & LORI J. JEROME	C/O D. JOHNSON, 133 W. BARE HILL
14	5 1436	DR006 LAMONTAGUE, RICHARD L. & SUSAN M.	P. O. BOX #141
15	1965	DR007 PARADIS, RALPH	P.O. BOX 184
16	4 462	DR008 STENSON, KURT & STEPHANIE ARSENAULT	C/O ARSENAULT P.O. BOX 622
17	3658	DR008p HILL COUNTRY VENDING MACHINES	H.C. BOX 328
18	1967	DR009 PARADIS, CAMILLE J., & RALPH E., HELEN M. BUNDY & MARILYN P. GROVER	C/O MARY PARADIS
19	3 1957	DR010 PANESON, ALEXANDER & CAROL A.	124 SIBLEY RD.
20	435	DR011 CHOCK, TIMOTHY J. & BARBARA A. WALSH	P.O. BOX 39
21	2 2919	DR012 WALLACE, JEFFREY W. & ROBYN	P.O. BOX 301
22	2914	DR015 WADDLETON, THERESA C.	27 HOLBROOK AVE.
23	1846	DR016 MURRAY, HAROLD E., JR. & BEVERLY B.	P. O. BOX #6
24	3753	DR016p MURRAY, HAROLD E., JR. & BEVERLY B.	P. O. BOX #6
25	1780	DR017 MOODY, RUTH H. & JANICE L. GRAY & ERNEST B. LA PLANTE	P. O. BOX #264
26	304	DR018 BROWN, GENEVA & WM.G. SHORT, JR.	P.O. BOX 35
27	183	DR019 LODATO, ELAINE	24 WILLOWBROOK COURT
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ATTACHMENT C
LABORATORY DATA SHEETS
HOUSE 1



State of Vermont

Department of Fish and Wildlife
Department of Forests, Parks and Recreation
Department of Environmental Conservation
State Geologist
Natural Resources Conservation Council

AGENCY OF NATURAL RESOURCES
Department of Environmental Conservation

Hazardous Materials Management Division
103 South Main Street / West Building
Waterbury, VT 05671-0404
802-244-8702

July 24, 1992

Eva Sherman
Postmaster
East Dover, Vermont 05341

RE: Sampling results for Maple Leaf Country Store, East Dover
(Site #92-1222)

Dear Ms. Sherman:

The Sites Management Section (SMS) received a copy of test results from a sample of water collected from the East Dover Post Office water supply well by James Shippee on July 1, 1992.

The sample was collected in response to petroleum contamination detected at the Maple Leaf Country Store. No petroleum constituents were found in the sample collected from the Post Office. A copy of the lab results are attached for your review. Please feel free to call if you have any questions or concerns.

Sincerely,

Charles B. Schwer, Supervisor
Sites Management Section

cc: Catherine Kaufmann

CBS:PG/letters/maple-po.let



ANALYTICAL DATA
SUMMARY

JUL 22 1992

Report Date: 07/09/92

Account: Jim H. Shippee Welding

Address: P.O. Box 47
RD 2 Box 24
Vermont,, VT 05354
802-257-5130

Project Manager:

Project Name: Maple Leaf Ctry Store (SMS 92-1222)

Project No.: SMS92-1222

Lab Sample No.'s:


21884022-001

21884022-002

21884022-003

21884022-004

Reviewed by


Stephen DiMattei
Quality Assurance Officer

Lab Certifications

EPA ID: No. MA059
Connecticut: No. PH 0515
Florida: QA Plan No. 900437G
Maine: Reciprocity
Massachusetts: No. 313
New Hampshire: No. 24190-A,B
New York: ELAP No. 11116
Rhode Island: Reciprocity



Matrix Analytical, Inc.
106 South Street
Hopkinton, MA 01748
1 800 3-MATRIX

FINAL REPORT

Client Information

Account: Jim H. Shippee Welding
Address: P.O. Box 47
RD 2 Box 24
Vermont, VT 05354

Project Name: Maple Leaf Ctry Store (SMS 92-1222)
Project Number: SMS92-1222
Project Manager:
Sampler Name: James H. Shippee Welding

Sample Information

Lab ID: 21884022-001
Client Id: MLCS-1
Matrix: Water

Date Sampled: 07/01/92 15:34
Date Received: 07/02/92 : 0
Date Reported: 07/09/92

Analytical Parameter	Result	Unit	Detection Limit	Method No.	Analyst	Date Analyzed
<u>VOLATILE ORGANICS</u>						
Benzene	ND	ug/l	1	602	tf	07/07/92
Chlorobenzene	ND	ug/l	1	602	tf	07/07/92
1,2-Dichlorobenzene	ND	ug/l	1	602	tf	07/07/92
1,3-Dichlorobenzene	ND	ug/l	1	602	tf	07/07/92
1,4-Dichlorobenzene	ND	ug/l	1	602	tf	07/07/92
Ethylbenzene	ND	ug/l	1	602	tf	07/07/92
MTBE	ND	ug/l	5	602	tf	07/07/92
Toluene	ND	ug/l	1	602	tf	07/07/92
Xylene	ND	ug/l	1	602	tf	07/07/92
<u>SURROGATE STUDIES - VOLATILES</u>						
Bromofluorobenzene (602/8020)	94	Percent			tf	07/07/92



Matrix Analytical, Inc.
106 South Street
Hopkinton, MA 01748
1 800 3-MATRIX

FINAL REPORT

Client Information

Account: Jim H. Shippee Welding
Address: P.O. Box 47
RD 2 Box 24
Vermont, VT 05354

Project Name: Maple Leaf Ctry Store (SMS 92-1222)
Project Number: SMS92-1222
Project Manager:
Sampler Name: James H. Shippee Welding

Sample Information

Lab ID: 21884022-003
Client Id: MKCS-2
Matrix: Water

Date Sampled: 07/01/92 15:35
Date Received: 07/02/92 :0
Date Reported: 07/09/92

Analytical Parameter	Result	Unit	Detection Limit	Method No.	Analyst	Date Analyzed
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HYDROCARBON ANALYSIS

Total Petroleum Hydrocarbon

<0.1

mg/l

0.1

418.1

jt

07/08/92



Matrix Analytical, Inc.
106 South Street
Hopkinton, MA 01748
1 800 3-MATRIX

FINAL REPORT

Client Information

Account: Jim H. Shippee Welding
Address: P.O. Box 47
RD 2 Box 24
Vermont, VT 05354

Project Name: Maple Leaf Ctry Store (SMS 92-1222)
Project Number: SMS92-1222
Project Manager:
Sampler Name: James H. Shippee Welding

Sample Information

Lab ID: 21884022-002
Client Id: MLCS-FB
Matrix: Water

Date Sampled: 07/01/92 15:40
Date Received: 07/02/92 : 0
Date Reported: 07/09/92

Analytical Parameter	Result	Unit	Detection Limit	Method No.	Analyst	Date Analyzed
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VOLATILE ORGANICS

Benzene	ND	ug/l	1	602	tf	07/07/92
Chlorobenzene	ND	ug/l	1	602	tf	07/07/92
1,2-Dichlorobenzene	ND	ug/l	1	602	tf	07/07/92
1,3-Dichlorobenzene	ND	ug/l	1	602	tf	07/07/92
1,4-Dichlorobenzene	ND	ug/l	1	602	tf	07/07/92
Ethylbenzene	ND	ug/l	1	602	tf	07/07/92
MTBE	ND	ug/l	5	602	tf	07/07/92
Toluene	ND	ug/l	1	602	tf	07/07/92
Xylene	ND	ug/l	1	602	tf	07/07/92

SURROGATE STUDIES - VOLATILES

Bromofluorobenzene (602/8020)	92	Percent			tf	07/07/92
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Matrix Analytical, Inc.
106 South Street
Hopkinton, MA 01748
1 800 3-MATRIX

FINAL REPORT

Client Information

Account: Jim H. Shippee Welding
Address: P.O. Box 47
RD 2 Box 24
Vermont, VT 05354

Project Name: Maple Leaf Ctry Store (SMS 92-1222)
Project Number: SMS92-1222
Project Manager:
Sampler Name:

Sample Information

Lab ID: 21884022-004
Client Id: QC-Report
Matrix: Water
Comment: Water

Date Sampled: 07/01/92 :
Date Received: 07/02/92 : 0
Date Reported: 07/09/92

Analytical Parameter	Result	Unit	Detection Limit	Method No.	Analyst	Date Analyzed
----------------------	--------	------	-----------------	------------	---------	---------------

METHOD BLANK - VOLATILES

Method Blank

ND

ug/l

8020/602

METHOD SUMMARIES

Total petroleum hydrocarbons are performed by Fourier Transform Infrared Spectroscopy (FTIR) using BioRad FTS-7 system. Samples are extracted in freon and subsequently treated with silica gel (to remove vegetable/animal fats) before measurement. 10 and 100 mm sample cells are routinely used to provide necessary detection limits.

Volatile organic analysis is performed using H/P 5995 or 5970 GC/MS, Tekmar purge and trap, and ALS autosampler. Chromatography incorporates packed and megabore columns. Data reduction is performed on RTE 1000 and ChemStation systems. Tuning is based on BFB standards. Procedural guidelines follow EPA 624 or SW846 for all analyses. Aromatic volatiles listed in VOA 8020 are analyzed using GC/MS systems.

METHOD REFERENCES

1. Test Methods For Evaluating Solid Waste: Physical Chemical Methods. EPA SW 846. November 1986.
2. Methods For Chemical Analysis of Water and Wastes. EPA 600/4-79-200. Revised March 1983.
3. Standard Methods For Examination of Water and Wastewater. APHA-AWWA-WACF., 16th Edition. 1985.

ATTACHMENT D
LABORATORY DATA SHEETS
HOUSE 2



ANALYTICAL DATA
SUMMARY

Report Date: 04/10/92

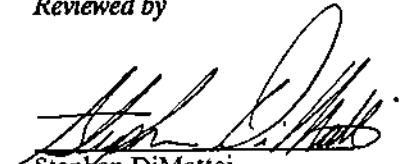
Account: TRI-S Environmental Consulting
Address: P.O. Box
205 Main Street
Brattleboro, VT 05302
802-254-3677

Project Manager:
Project Name: Wallace (4-6-92)
Project No.:

Lab Sample No.'s:

20971807-001 ... 20971807-002

Reviewed by


Stephen DiMattei
Quality Assurance Officer

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ON
4-13-92

Lab Certifications

EPA ID: No. MA059
Connecticut: No. PH 0515
Florida: QA Plan No. 900437G
Maine: Reciprocity
Massachusetts: No. 313
New Hampshire: No. 24190-A,B
New York: ELAP No. 11116
Rhode Island: Reciprocity



Matrix Analytical, Inc.
106 South Street
Hopkinton, MA 01748
1 800 3-MATRIX

FINAL REPORT

Client Information

Account: TRI-S Environmental Consulting
Address: P.O. Box
205 Main Street
Brattleboro, VT 05302

Project Name: Wallace (4-6-92)
Project Number:
Project Manager:
Sampler Name: TRI-S Environmental

Sample Information

Lab ID: 20971807-001
Client Id: Wallace D6
Matrix: Water

Date Sampled: 04/06/92 08:30
Date Received: 04/06/92 : 0
Date Reported: 04/10/92

Analytical Parameter	Result	Unit	Detection Limit	Method No.	Analyst	Date Analyzed
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VOLATILE ORGANICS

Benzene	ND	ug/l	1	8020	tf	04/07/92
Chlorobenzene	ND	ug/l	1	8020	tf	04/07/92
1,2-Dichlorobenzene	ND	ug/l	1	8020	tf	04/07/92
1,3-Dichlorobenzene	ND	ug/l	1	8020	tf	04/07/92
1,4-Dichlorobenzene	ND	ug/l	1	8020	tf	04/07/92
Ethylbenzene	ND	ug/l	1	8020	tf	04/07/92
MIBB	ND	ug/l	5	8020	tf	04/07/92
Toluene	ND	ug/l	1	8020	tf	04/07/92
Xylene	ND	ug/l	1	8020	tf	04/07/92

SURROGATE STUDIES - VOLATILES

Sample ID:					tf	04/07/92
	20971807-001					
Bromofluorobenzene	98	Percent			tf	04/07/92

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ON
4/10/92



Matrix Analytical, Inc.
106 South Street
Hopkinton, MA 01748
1 800 3-MATRIX

FINAL REPORT

Client Information

Account: TRI-S Environmental Consulting
Address: P.O. Box
205 Main Street
Brattleboro, VT 05302

Project Name: Wallace (4-6-92)
Project Number:
Project Manager:
Sampler Name:

Sample Information

Lab ID: 20971807-002
Client Id: QC-Report
Matrix: Water
Comment: Water

Date Sampled: 04/06/92 :
Date Received: 04/06/92 : 0
Date Reported: 04/10/92

Analytical Parameter	Result	Unit	Detection Limit	Method No.	Analyst	Date Analyzed
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METHOD BLANK - VOLATILES

Method Blank

ND

ug/l

8020

METHOD SUMMARIES

Volatile organic analysis is performed using H/P 5995 or 5970 GC/MS, Tekmar purge and trap, and ALS autosampler. Chromatography incorporates packed and megabore columns. Data reduction is performed on RTE 1000 and ChemStation systems. Tuning is based on BFB standards. Procedural guidelines follow EPA 624 or SW846 for all analyses. Aromatic volatiles listed in VOA 8020 are analyzed using GC/MS systems.

METHOD REFERENCES

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2. Methods For Chemical Analysis of Water and Wastes. EPA 600/4-79-200. Revised March 1983.
3. Standard Methods For Examination of Water and Wastewater. APHA-AWWA-WACF., 16th Edition. 1985.

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4/14/92

CHAIN OF CUSTODY RECORD

CLIENT NAME:

ADDRESS:

P.O.# NA

CHECK ATTACHED

PROJECT # :

LOCATION :

SAMPLERS SIGNATURE :

[illegible]

RELINQUISHED BY:

RELINQUISHED BY

METHOD OF SHIPMENT:

RECEIVED BY:

RECEIVED BY

DATE/T

1161

H69.2.1

DATE/TIME

50

1/1/12

Year	Number of people (millions)
1980	20
1985	22
1990	24
1995	26
2000	28
2005	30
2010	32
2015	34
2020	38

2.

5

RECEIVED

CN

4-17.92-

ATTACHMENT E
LABORATORY DATA SHEETS
HOUSE 5



AQUARIAN ANALYTICAL INC.

Laboratory Services

P.O. Box 186

Canterbury, N.H. 03224

603-783-9097

10-01-92,15:34

Mr. Joseph Camanzo
EA2R, Inc.
222 Pleasant Street
Concord, N.H. 03301

Dear Mr. Joseph Camanzo:

Please find enclosed the reports, and invoice for the samples that were logged in on, 09-29-92.

AAI Sample	Date Sampled	Project Description	Sample Location
6366	09-29-92	MAPLE LEAF COUNTRY STORE	JOHNSON WELL

To perform these analyses, the following methods were used:

QTY. EPA Methodologies/Applications

1	EPA-624	VOA Waste Water
---	---------	-----------------

Thank you for using Aquarian Analytical Inc. on this project.
If I can be of any further help, please feel free to call.

Sincerely,

William M. Rice
William M. Rice
Laboratory Director

doc. L00213



AQUARIAN ANALYTICAL INC.

Laboratory Services

P.O. Box 186

Canterbury, N.H. 03224

603-783-9097

Volatile Organic Report

10-01-92, 15:33

Sample 6366

Sample Matrix = Water

Project = MAPLE LEAF COUNTRY STORE

Date Sampled = 09-29-92

Sampler = JOE CAMANZO

Date Logged In = 09-29-92, 18:25

Location = JOHNSON WELL

Date of Analysis = 10-01-92

Town = EAST DOVER

Organic Compound	Result (ppb)	Det. Lim. (ppb)	MCL
Bromodichloromethane	BD	2.0	-
Chlorodibromomethane	BD	2.0	-
Bromoform	BD	2.0	-
Chloroform	BD	2.0	-
Carbon Tetrachloride	BD	2.0	-
Dichloromethane	BD	4.0	-
1,1-dichloroethane	BD	2.0	-
1,2-dichloroethane	BD	4.0	-
1,1,1-trichloroethane	BD	2.0	-
1,1,2-trichloroethane	BD	2.0	-
1,1-dichloroethylene	BD	2.0	-
Trichloroethylene	BD	2.0	-
Tetrachloroethylene	BD	2.0	-
1,2-Dichloroethylene (c)	BD	2.0	-
1,2-Dichloroethylene (t)	BD	2.0	-
Chloroethane	BD	2.0	-
Vinylchloride	BD	10.0	-
Bromomethane	BD	10.0	-
Chloromethane	BD	10.0	-
Trichlorofluoromethane	BD	4.0	-
Benzene	BD	2.0	-
Toluene	BD	2.0	-
Ethylbenzene	BD	2.0	-
m&p-Xylene	BD	2.0	-
o-Xylene	BD	2.0	-
Chlorobenzene	BD	2.0	-
1,2-dichlorobenzene	BD	2.0	-
1,3-dichlorobenzene	BD	2.0	-
1,4-dichlorobenzene	BD	2.0	-
1,2,4-trichlorobenzene	BD	4.0	-
Styrene	BD	2.0	-
Acetone	BD	100.0	-
Tetrahydrofuran	BD	50.0	-
Diethylether	BD	30.0	-
Methyl t-butyl ether	BD	2.0	-
Methyl isobutyl ketone	BD	50.0	-
Methyl ethyl ketone	BD	50.0	-
Carbon Disulfide	BD	4.0	-
1,1,2-trichloro 1,2,2-trifluoroethane	BD	2.0	-

Comments:

Method of Analyses = EPA-624

Certified - N.H., Conn., Mass., Maine, EPA-624/524

BD = Below Detection Limit - Results are in parts per billion (ppb) unless otherwise noted.



AQUARIAN ANALYTICAL, INC.
PO Box 186, Morrill Road
Canterbury, NH 03224

Laboratory Services
FAX: (603) 783-9097
PHONE: (603) 783-9097



Project Number		Project Name Maple Leaf Country Store				Town/Site East Dover, VT Site 1											
Project Engineer Joseph Camarzo		Phone (603) 224-8090				Reports & Invoice To: EA2R.											
Company 222 Pleasant St. Concord, NH 03301		FAX ()															
Description					AAI Work					Subcontracted Work							NOTES:
AAI ID #	Sample Identification	Date / Time Collected	Sample Matrix	Number of Containers	524.2	624 / 8240 / 8260	BTEX / MTBE	TPH (Gasoline)	TPH (Fuel Oil)	Corrosivity	Ignitability	Reactivity	TCLP Metals (8 HCRA)	Herbicides	Pest. / PCB	Semivolatiles	
6366	Johnson mill property well	9/29/92	H2O	2		✓											
Relinquished By Sampler(s) Joe Camarzo		Date / Time 9/29/92 3:40		Received By		Comments:											
Relinquished By		Date / Time		Received By													
Relinquished By		Date / Time		Received by Laboratory William M. Rice													